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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,426	03/31/2004	Steven P. DenBaars	P0149US2-7	7679
23935	7590	11/09/2004		
KOPPEL, JACOBS, PATRICK & HEYBL 555 ST. CHARLES DRIVE SUITE 107 THOUSAND OAKS, CA 91360			EXAMINER BAUMEISTER, BRADLEY W	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/815,426

Applicant(s)

DENBAARS ET AL.

Examiner

B. William Baumeister

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) 4-7, 9, 11-15, 19-22, 24, 30-42, 44-51, 54 and 55 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8, 10, 16-18, 23, 29, 35, 43-45, 52 and 53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/1/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. In the REMARKS section associated with preliminary amendment filed 3/21/04, Applicant has stated that “[t]his application is a divisional from Patent Application Serial No. 09/675,696. The withdrawn claims are currently the subject matter for an Appeal before the Board of Patent Appeals and Interferences.” The examiner notes the following:

- a. First, this statement includes a clerical error, as the parent application currently pending before the Board is, in fact, 09/528,262.
- b. Second, it was not fully clear from this statement which remaining invention Applicant is intending to prosecute since two separate restrictions were issued during the prosecution of the parent application. Specifically, in the Office Action dated 1/22/02 (paper #12), a species restriction was issued between incoherent-light-emitting LEDs (Species I) and coherent-light-emitting laser diodes (Species II); and Applicant subsequently elected the LED species. Later, in the Office Action dated 7/9/03 (paper #25), the LEDs of species I were further restricted between those embodiments possessing a substrate that was doped throughout with impurities (Species I, hereinafter referred to as “Species IA” to distinguish the two restrictions for clarity) and those embodiments possessing a substrate that contains impurities in separate color centers (Species II, hereinafter “Species IB”); and Applicant subsequently elected the “doped-throughout” Species IA that is currently pending at the Board.
- c. While, applicant’s preliminary amendment designates the claims directed towards the previously-prosecuted Species IA invention as being non-elected, various claims

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remaining are directed towards either the Species II (laser) invention, or alternatively to the Species IB invention of LEDs with separate color centers, respectively. As such, it was not reasonably clear which invention Applicant intended to now prosecute.

d. In response to a telephone conversation 10/27/04, Applicant's representative, Mr. Jaye Heybl, verified that applicant intends to now prosecute the invention of Species IB: LEDs having a substrate that contains impurities in separate color centers. As such, **claims 20-22 and 48-51 are withdrawn from further consideration for being directed towards the lasers of non-elected invention II.**

e. Also, claims 11-13 and 19 are directed towards embodiments depicted in FIGs 2, 4 or 6: embodiments that possess a substrate doped throughout with impurities. As such, **claims 11-13 and 19 are withdrawn from further consideration for being directed towards the non-elected invention IB.**

f. Applicant's representative asserted that he considers claims 16-18, 25-29, 43-45, 52 and 53 to be directed towards the elected invention. The examiner also considers claims 1-3, 8, 10 and 23 to be generic to at least inventions IA and IB.

g. To summarize,

- i. Claims 1-3, 8, 10, 16-18, 23, 25-29, 32, 43-45, 52 and 53 are under active consideration.
- ii. Claims 11-13, 19-22, 48-51 and the other claims so noted by applicant in the preliminary amendment are withdrawn from consideration.

***Priority***

2. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. § 120 as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

This application repeats a substantial portion of prior Application No. 09/528,262, filed 3/17/2000, and adds and claims additional disclosure not presented in the prior application (see claim 45). Since this application names an inventor or inventors named in the prior application, it may constitute a continuation-in-part of the prior application. Should applicant desire to obtain the benefit of the filing date of the prior application, attention is directed to 35 U.S.C. 120 and 37 CFR 1.78.

***Claim Objections***

3. Claim 10 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 10 does not set forth any further limitations to its parent claim 1.

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4. Claim 45 is objected to for being dependent upon a claim that has been withdrawn from consideration. Applicant is required to cancel the claim(s), or rewrite the claim(s) in independent form.

### *Drawings*

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features of the FIG 2 and FIG 5 embodiments, combined into a single device as set forth in claim 45, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified

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and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not set forth the features of the FIG 2 and FIG 5 embodiments, combined into a single device as set forth in claim 45. No new matter should be entered.

### *Claim Rejections - 35 USC § 112*

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claim 45 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for making LEDs according to either of the embodiments depicted in FIGs 2 and 5, does not reasonably provide enablement for an LED that simultaneously incorporates “a means for selectively causing each of said plurality of active layers to emit light alone or in combination with others of said plurality of active layers...” (see claim 30) and also a substrate that is doped by one or more elements in separate color centers, each said color center absorbs UV light and re-emits it as a different color. The specification does not enable any person skilled

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in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. The specification does not teach how the respective active layer and associated LED structures, the contact dispositions or the associated circuitry are to be formed to achieve these simultaneous functions.

*Claim Rejections - 35 USC § 102*

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-3, 8, 10, 16, 18, 25-29, 43, 44 and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto, JP '203 (complete English translation previously provided in parent application). Matsumoto discloses UV emitting, GAN-based LED formed on transparent substrates such as sapphire. Portions of the substrate may be doped with various transition and/or rare earth elements such that the substrate emits secondary color(s), and may be used in a full color display, indicating that the emission of the active layer is controllable such that it emits primarily over a selected one or more "color centers." (See e.g., paragraph [0014])

a. In further regard to claim 29, regardless of whether JP '203 discloses any of the claimed methods for doping the substrate, please note that the product-by-process doctrine applies.



*Claim Rejections - 35 USC § 103*

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-3, 8, 10, 16, 18, 25-29, 43, 44 and 52 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over JP '203 as applied to the claims above and further in view of Bojarczuk, Jr. et al. '185.

a. JP '203 does not expressly state how the structural details of how such an integrated full color display is specifically formed. In the parent application, Applicant has argued that JP '203 is not enabled. The examiner disagrees, but to moot the issue, please see e.g., FIG 8 of Bojarczuk. In this embodiment of the GaN-based LED on sapphire substrate, a plurality of separately controllable light emitting sections are disposed above separate color centers.

i. As such, Bojarczuk evidences that these structural details missing from JP '203 were obvious design details, readily understood by the ordinarily skilled artisan. And therefore, Bojarczuk is in fact enabled, and the 102 anticipation rejection is proper.

ii. Additionally/alternatively, it would have been obvious to one of ordinary skill in the art at the time of the invention to have taken the sapphire substrate with separately doped color centers of JP '203, and formed thereover separately

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controllable LED sections as taught by Bojarczuk because JP '203 desires this type of display device and Bojarczuk teaches how to make it.

13. Claims 17, 23 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '203 in view of Bojarczuk, Jr. et al. '185 as applied to the claims above.

These claims set forth more specific LED structures that are not necessarily present in the JP '203 device in that other potential structural configurations could be employed to construct that LED color array. However, Bojarczuk teaches these additional structural details as well in the FIG 8 embodiment. It would have been obvious to one of ordinary skill in the art at the time of the invention to have taken the sapphire substrate with separately doped color centers of JP '203, and formed thereover separately controllable LED sections as taught by Bojarczuk because JP '203 desires this type of display device and Bojarczuk teaches how to make it.

#### ***Contact Information***

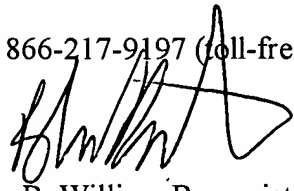
Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. William Baumeister whose telephone number is (571) 272-1722. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**B. WILLIAM BAUMEISTER  
PRIMARY EXAMINER**



B. William Baumeister  
Primary Examiner  
Art Unit 2815

November 8, 2004